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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,291	06/27/2003	Philip D. Nguyen	2002-IP-009210U1	8521

7590 05/17/2005

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EXAMINER

SUCHFIELD, GEORGE A

ART UNIT	PAPER NUMBER
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3672

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,291

Applicant(s)

NGUYEN ET AL.

Examiner

George Suchfield

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) 39-72 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-9,12-15,17-27 and 30-33 is/are rejected.
- 7) ☒ Claim(s) 6,10,11,16,28,29 and 34 is/are objected to.
- 8) ☒ Claim(s) 1-72 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/21/05;1/25/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-38, drawn to method of fracturing and propping a subterranean formation, classified in class 166, subclass 280.2.
 - II. Claims 39-72, drawn to a composition, classified in class 507, subclass 219.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the composition could be used in other applications or processes, such as in gravel packing a well or in the treatment of other permeable material, such as in a soil remediation or soil stabilization process. Also, the composition would appear to have utility as a filter media in an above-ground water treatment or separation process.
 3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
 4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.
 5. During a telephone conversation with Robert A. Kent on May 4, 2005 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-38.
- Affirmation of this election must be made by applicant in replying to this Office action. Claims

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39-72 stand withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 14 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 14 and 32 are deemed indefinite with respect to the recitation of “a desirable number of voids”. Since the term “desirable” is subjective or non-specific, these claims fails to “distinctly claim the invention”, as required by the statute.

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1, 2, 7-9, 12, 14, 16, 17-21, 25-27, 30, 32, 34 and 35 are rejected under 35

U.S.C. 102(a) as being anticipated by Cooke, Jr. (2003/0060374).

In one embodiment, Cooke, Jr. (note Figure 2c) may employ a proppant composition in the fracturing process comprising a mixture or composite of proppant particles and a degradable polymer, as called for in independent claims 1 and 20.

Cooke, Jr. further discloses one or more of the degradable polymers set forth in claims 8, 12, 18, 26 and 30 and may further use a plasticizer, as called for in claims 9 and 27.

As per claim 14 and 32 it appears from the illustration in Figure 2c that a “desirable” number of voids will be present up degradation and removal of the degradable polymer phase.

As per claims 16 and 34, note that the proppant composition of Figure 2c of Cooke, Jr., and thus the degradable polymer component, appear to have a “rod-like” shape, as recited.

As per claim 35, it is deemed that the resulting void space(s) created by the degradation of the degradable polymer will necessarily be “channel-like” in shape, e.g., due to the accompanying or resulting fluid-flow through the proppant matrix.

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

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claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claim 3, 15, 33 and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooke, Jr. (2003/0060374).

The size range of the proppant particles utilized in the method of Cooke, Jr., as recited in claim 3, and the resulting proppant matrix conductivity recited in claims 36-38 would have been an obvious matter of choice or design in carrying out the fracturing process of Cooke, Jr. based on, e.g., the characteristics or composition of the subterranean formation(s) actually encountered in the field and/or based on routine experimentation for process optimization or economic feasibility.

Similarly, the precise amount of degradable polymer present in the proppant composition utilized by Cooke, Jr., as called for in claims 15 and 33, would also have been an obvious matter of choice or design in carrying out the fracturing process of Cooke, Jr. based on, e.g., the characteristics or composition of the subterranean formation(s) actually encountered in the field, such as the structural integrity and/or degree of consolidation of the formation matrix.

14. Claims 1-5, 7, 8, 14, 15, 17, 19, 20, 22, 23, 25, 26, 32, 33 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Betzold (6,328,105).

Betzold (note col. 2, lines 33-62; col. 3, line 42 - col. 4, line 15) discloses a process of fracturing and propping a subterranean formation(s) with a proppant composition or composite,

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especially in view of the coating on the proppant particles, comprising a mixture of a coated, bondable propping particles and removable particles, wherein such removable particles may decompose or degrade within the formation fracture, as called for in independent claims 1 and 20.

As per claim 3, the average particle size range set forth in the EXAMPLE of 800-1000 microns would appear to fall within the mesh particle size range recited.

As per claims 4, 5, 22, 23, the conventional coated particles or coating formulations referred to in Betzold (note col. 3, lines 17-41) would appear to encompass those recited.

Betzold further discloses one or more of the degradable polymers set forth in claims 8, 26.

As per claim 14 and 32 it is deemed that in the operation of the Betzold fracturing process, a “desirable” number of voids will be inherently or necessarily present upon degradation and removal of the degradable polymer phase, in order to allow flowback and production of mineral fluids.

As per claims 15 and 33, the exemplary range set forth in Betzold (note col. 5, lines 7-17) of 10-30 % falls within the recited range of “0.1% to about 30%”.

As per claim 35, it is deemed that the resulting void space(s) created by the degradation of the degradable polymer in the process of Betzold will necessarily be “channel-like” in shape, e.g., due to the accompanying or resulting fluid-flow through the proppant matrix.

15. Claims 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betzold (6,328,105).

To provide resulting proppant matrix conductivity recited in claims 36-38 would have been an obvious matter of choice or design in carrying out the fracturing process of Betzold based

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on, e.g., the characteristics or composition of the subterranean formation(s) actually encountered in the field and/or based on routine experimentation for process optimization or economic feasibility.

16. Claim 9, 12, 27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betzold (6,328,105) as applied to claim 1 above, and further in view of Cooke, Jr. (2003/0060374).

As per claims 9 and 27, it would have been obvious to one of ordinary skill in the art to which the invention pertains, to employ a degradable polymer which further comprises a plasticizer and/or which has been plasticized in the proppant composition utilized in the fracturing and propping process of Betzold, as taught by Cooke, Jr. (note Para [0027]), applied above, in order to impart improved characteristics to such degradable polymer, such as decreased viscosity.

As per claims 12 and 30, it would have been further obvious to one of ordinary skill in the art to which the invention pertains, to employ a poly(lactide) as the degradable polymer in the proppant composition utilized in the fracturing and propping process of Betzold, as taught by Cooke, Jr. (note Para [0023]), applied above, based upon, e.g., the availability and/or cost effectiveness of poly(lactide) relative to other conventional degradable polymers.

17. Claim 13 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betzold (6,328,105) as applied to claim 1 above, and further in view of Cooke, Jr. (2003/0060374) and Cooke, Jr. et al (4,068,718).

As per claims 13 and 31, it would have been obvious to one of ordinary skill in the art to which the invention pertains, to employ a poly(lactide) as the degradable polymer in the proppant

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composition utilized in the fracturing and propping process of Betzold, as taught by Cooke, Jr. (note Para [0023]), applied above, based upon, e.g., the availability and/or cost effectiveness of poly(lactide) relative to other conventional degradable polymers. It would also have been obvious to employ bauxite as the proppant particles in the process of Betzold, as taught by Cooke, Jr. et al (note col. 2, lines 13-34), in order to impart enhanced compressive strength and resistance to formation fluids.

18. Claims 1, 3, 7, 14, 17, 19, 20, 21, 25, 32 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Atkins et al (3,364,995).

Atkins et al (note col. 4, line 64 – col. 5, line 2) discloses a process of fracturing and propping a subterranean formation(s) employing a proppant composition in the fracturing fluid which comprises a mixture or composite of a proppant particulate and a degradable material, such as a solid spacer material which chemically decomposes in the fracture(s), as called for in independent claims 1 and 20.

As per claim 3, the recited range of 10-60 mesh falls within or is encompassed by the proppant size range in Atkins et al (note col. 2, lines 33-57) of 4-80 mesh.

As per claims 7 and 25, Atkins et al may employ either a degradable polymer, i.e., a polysulfone and a dehydrated salt, such as a carbonate as the degradable component in the proppant mixture.

As per claims 14 and 32, it is deemed that in the operation of the Atkins et al fracturing process, a “desirable” number of voids will be inherently or necessarily present upon degradation and removal of the degradable polymer phase, in order to allow flowback and production of mineral fluids.

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As per claim 35, it is deemed that the resulting void space(s) created by the degradation of the degradable polymer, carbide or carbonate component in the process of Atkins will necessarily be “channel-like” in shape, e.g., due to the accompanying or resulting fluid-flow through the proppant matrix.

19. Claims 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atkins et al (3,364,995).

To provide resulting proppant matrix conductivity recited in claims 36-38 would have been an obvious matter of choice or design in carrying out the fracturing process of Atkins et al based on, e.g., the characteristics or composition of the subterranean formation(s) actually encountered in the field and/or based on routine experimentation for process optimization or economic feasibility.

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

It is noted that the reference to Huitt (3,173,484) also discloses a method of fracturing and propping a subterranean formation utilizing a proppant mixture or composite of proppant particles and a soluble or decomposable component. Hence, it is deemed cumulative to the references applied above against one or more of the pending claims, such as claims 1 and 20. Accordingly, any amendment(s) to the pending claims in response to this Office action must distinguish over Huitt'484, as well.

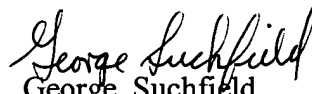
21. Claims 6, 10, 11, 16, 24, 28, 29 and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Suchfield whose telephone number is 571-272-7036. The examiner can normally be reached on M-F (6:30 - 3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


George Suchfield
Primary Examiner
Art Unit 3672

Gs
May 6, 2005